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American
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TEACHING OF PSYCHOLOGY

MS. 1221 *(13 pages/paper: $4; fiche: $2)*
Spiral Omnibus: Undergraduate Curriculum Planning Model

SAMUEL A. MUDD
Gettysburg College

This paper is directed toward those interested in the planning of a science-oriented undergraduate major curriculum in psychology where the courses designed to fairly sample the discipline must be offered by a small staff, representing just a few specialities of the field, to a student population differing widely in aptitude and strength of motivation. The spiral omnibus provides a means by which curriculum decisions may be made with regard to student competence and motivation, the maintenance of student choice in course selection, program standardization, and sequencing with respect to course level and articulation between courses. The content by methods "curriculum matrix" that specifies the model in two dimensions allows for representative sampling of material defined by the matrix and is compatible with a developmental view of the student as he or she progresses through the major program. The model is also open in that new types and levels of content and method, as well as further dimensions of the domain of the program, can be added.

GENERAL PSYCHOLOGY

MS. 1222 *(27 pages/paper: $5; fiche: $2)*
Observations on Psychological Research in Bulgaria

LOUIS AARONS
Illinois Dept. of Mental Health and Developmental Disabilities, Chicago

In November of 1971, the U.S. National Academy of Sciences and the Bulgarian Academy of Sciences agreed on a bilateral scientific exchange program to promote the interests of international scientific cooperation. The author visited Sofia, Bulgaria, as the first U.S. representative in the field of psychology in March of 1975. Ongoing research activities and interests of scientists at 10 different laboratories are described. In general, psychology in Bulgaria is guided by potential applications within Bulgarian society. Although much of their efforts follows Soviet psychology, the Bulgarians are increasingly aware of and open to developments in Western psychology. It is hoped that this report will provide an impetus for correspondence between American and Bulgarian psychologists and will lead to collaboration on problems of mutual interest.

METHODOLOGY AND RESEARCH TECHNOLOGY

MS. 1223 *(45 pages/paper: $5; fiche: $2)*

Assessing the Reliability and Validity of Multiattribute Utility Procedures: An Application of the Theory of Generalizability

J. ROBERT NEWMAN
Social Science Research Institute, University of Southern California

Office of Naval Research Technical Report, 1975 (July), No. 001597-2-T.

A theoretical rationale for assessing the reliability, validity, and dependability of multiattribute utility (MAU) models and techniques is presented. If an investigator is advocating the use of a MAU model or procedure, he or she is interested in generalizing from observations at hand to a universe or domain of observations that are members of that same universe. The universe must be unambiguously defined, but it is not necessary to assume that that universe has any statistical properties such as uniform variances or covariances. A study of generalizability is conducted by taking measurements on persons, stimuli, tasks, etc. that are assumed to be randomly representative of a universe an investigator wishes to generalize to. The ratio of an estimate of the universe "score" variance to an estimate of the observed score variance is the coefficient of generalizability. This is estimated by the intraclass correlation coefficient. The Analysis of Variance and the Expected Mean Square paradigm of Cornfield and Tukey is used to obtain the appropriate variance estimates. The theory dispenses with unnecessary and unwarranted assumptions, and eliminates the distinction between reliability and validity. Any generalizability study can be conducted without reference to having a parallel measure of the MAU instrument or some external criterion of "success." If a MAU technique is compared to some non-MAU technique for doing the same thing, then it is possible to calculate the coefficient of generalizability for both methods, thus allowing the investigator to decide which is best for his or her purposes. Three numerical examples are given of the theory. Preliminary investigations have indicated that MAU models and techniques based on such models may be better than non-MAU models, since the former have a tendency to reduce the interaction between judges and the thing being judged when such interaction represents inconsistency of judgment.

MS. 1224 *(16 pages/paper: $4; fiche: $2)*
Perception of Control: Construction of a Multidimensional Scale

CARMEN BARROSO
Fundacao Carlos Chagas, Sao Paulo, Brazil

This study shows that perception of control is multidimensional and generalizable across different types of situations. A scale was constructed that was made up of 24 situations that are equally distributed between the areas of achievement and interpersonal relationships. In the first part, each situation is presented with a list of six causal elements and the subject is asked to rate the likelihood of each element. For each situation, the elements correspond to the following categories: (a) impersonal external forces, (b) personal external forces, (c) volitional internal forces (effort), (d) non-volitional internal forces (ability), (e) luck, and (f) unknown factors. A second part presents each situation again, now with some plausible outcome. The subject is then asked to rate the importance of each element in causing that outcome. Positive and negative outcomes are equally represented. The scale was administered to 528 precollege students. An oblique factor analysis of the importance ratings yielded five factors: (a) attribution of success and failure to external forces, (b) attribution of success and failure to good or bad luck, (c) attribution to undetermined sources, (d) attribution of success to stable forces, and (e) attribution of failure to internal forces. Five factors emerged from the analysis of the likelihood ratings: (a) expectancy of positive outcomes (general optimism), (b) expectancy of negative outcomes (general pessimism), (c) internality in achievement, (d) internality in interpersonal relationships, and (e) belief in an incomprehensible world.

MS. 1225 *(40 pages/paper: $5; fiche: $2)*
Fennema-Sherman Mathematics Attitudes Scales: Instruments Designed to Measure Attitudes Toward the Learning of Mathematics by Females and Males

ELIZABETH FENNEMA and JULIA A. SHERMAN
University of Wisconsin-Madison

The development of nine, domain specific, Likert-type scales measuring important attitudes related to mathematics learning is described. The scales can be used as a total package to assess a variety of attitudes toward the learning of mathematics, or the scales can be used individually. Each scale assesses an attitude that has been hypothesized to be related to the study and/or learning of mathematics by males and females. The scales include (a) confidence in learning mathematics; (b) father, mother, and teacher scales measuring perceptions of attitudes toward one as a learner of mathematics; (c) effectance motivation in mathematics; (d) attitude toward success in mathematics; (e) mathematics as a male domain; (f) usefulness

of mathematics; and (g) mathematics anxiety scale. The scales are reproduced in their entirety. Included are item statistics as well as scale statistics that were obtained by testing two high-school-age populations (N = 1600).

MS. 1226 *(58 pages/paper: $6; fiche: $2)*
Least Preferred Coworker Scales: Research and Development

WILLIAM M. FOX
University of Florida

Office of Naval Research Technical Report, 1974 (Sept), No. 70-5.

The meaning of Least Preferred Coworker (LPC) scores (in various forms) is explored in terms of relationships among LPC data drawn from various samples and scores. Factor analyses of the Fiedler Instrument and the author's developmental 32-scale instrument are presented. Also, mean and retest reliability data for individual scales are presented. With these data, LPC scores do not detect significant differences in leader behavior or performance. Low LPC leaders appear to think better of themselves, and high performance leaders respond quite differently to two LPC scales. Mean LPC raw scores and mean LPC raw scores squared (to test for nonlinear quadratic relationships) did not figure significantly with leader behavioral area scores in predicting leader performance. However, when mean LPC scores were multiplied times the behavioral area scores (to inject interaction terms), significant mean LPC score moderating effects resulted. The possible impact of lead-lag relationships between leader behavior and subordinate performance on research on leadership effectiveness is speculated.

MS. 1227 *(28 pages/paper: $5; fiche: $2)*
Concerning Questionnaire Quality and Operational Utility

R. H. FINN
University of Georgia

In an effort to demonstrate the meaning and importance of questionnaire quality, the results of a questionnaire that had been previously administered to 77 participants in a supervisory training program were reviewed and reanalyzed. The questionnaire was intended to measure a variety of attitudes and response sets that are relevant to a supervisor's role. The expected relationships between questionnaire responses and variables such as race and sex were not found. Operating on the premise that the absence of positive results may have been due to inadequacies in the questionnaire, the original data were reviewed and reanalyzed. Reliability of the several content areas of the questionnaire was estimated with the intraclass correlation. Content validity was examined with the use of factor analysis. These

procedures revealed that parts of the questionnaire reflected good quality while other parts did not, and implications for concept formation were pointed out and discussed. After transforming questionnaire responses into factor scores on each of the factored dimensions, the relationship between questionnaire quality and operational utility was examined by reanalyzing the data. Hypotheses were then tested, using analysis of variance and chi-square, with the outcome supporting the premise that good questionnaire quality is a necessary prerequisite to operational utility.

MS. 1228 *(29 pages/paper: $5; fiche: $2)*

Research on the Technology of Inference and Decision

WARD EDWARDS
Social Science Research Institute, University of Southern California

Office of Naval Research Final Technical Report, 1975 (Aug), No. 001597-F.

A summary of seven months of research on the technology of inference and decision is presented. Theoretical and experimental work on the three major topics of elicitation of subjective probabilities, multiattribute utility theory, and error in decision analysis is discussed. An experimental investigation showed that the tightness of assessed continuous subjective probability distributions may well be an artifact of the elicitation procedure. Other experimental work indicated that misaggregation, rather than misperception or a response bias, is the most likely explanation for conservative probabilistic inference. On the second major topic, the underlying role of measurement theory in using and comparing utility models and assessment procedures is reviewed in nontechnical terms. The similarity of validation problems between mental test theory and multiattribute utility measurement indicates a possible validation tool. An investigation of the theory of generalizability showed how such theory can be used as a tool for validating multiattribute utility measurement. The final topic of error in decision analysis also serves as an overview of how various kinds of research should fit together. In addition, specific errors in decision analysis due to improper use of information are detailed.

MS. 1229 *(25 pages/paper: $4; fiche: $2)*

Endorsements, Content, and Desirability Ratings of 207 Rationally Generated Autonomy Items

T. B. ROGERS and J. C. VAN DER LEE
University of Calgary, Alberta, Canada

As part of a research program intended to clarify some of the processes involved in answering personality items, a series of items reflecting a single content dimension were generated. These 207 autonomy items were carefully edited for length, sentence structure, and form. Each item has a rational link with a predefined construct of autonomy. Endorsements, as well as

content and desirability ratings, are presented and several analyses of these item parameters are carried out. The relation of these data to a similar study was also assessed.

MS. 1230 *(5 pages/paper: $4; fiche: $2)*
Naturalistic Observation of Children: A Methodological Note

EDWARD L. COCHRAN
Johns Hopkins University

A portable camera blind, equipped with videotape apparatus and one-way screens, has proved useful in research requiring naturalistic observation of children. Since the presence of observers in nursery schools can change the behavior of children, unbiased observations have been difficult to obtain. One-way mirrors can be used to shield the observers, but these are usually available only in research-oriented institutions. The use of a portable camera blind brings the advantages of one-way screens to institutions that normally lack such observational facilities. Consequently, relatively unbiased naturalistic observations can be made of a more diversified sample than could previously be examined in research institutions.

Reexamination of Male Versus Female Representation in Psychological Research: Patrice Reardon and Suzanne Prescott. See MS. 1236, page 38.

HUMAN EXPERIMENTAL PSYCHOLOGY

MS. 1231 *(43 pages/paper: $5; fiche: $2)*
Misaggregation Explains Conservative Inference about Normally Distributed Populations

GLORIA E. WHEELER and WARD EDWARDS
Social Science Research Institute, University of Southern California

Office of Naval Research Technical Report, 1975 (Aug), No. 001597-5-T.

Three major hypotheses have been proposed to account for conservative inference: misaggregation, misperception, and response bias. The research reported in this paper allowed the testing of these hypotheses. Subjects made probabilistic judgments about stimuli generated from normally distributed populations. The populations were piles of pick-up sticks, each stick having one end painted blue and the remainder of the stick painted yellow. The length of blue paint was the random variable. In Experiment 1, each

subject made four types of judgments: noncumulative likelihood ratios, noncumulative odds, cumulative likelihood ratios, and cumulative odds. The results indicated that there was little difference between likelihood ratio and odds judgments, and that when judging single stimuli, subjects were veridical; conservatism occurred only when subjects were in a cumulating condition. Thus, the results ruled out the misperception hypothesis. Experiments 2 and 3 varied d', sequence construction, and population display. Sequences were constructed that would accentuate differences between predictions made by response bias and misaggregation hypotheses. The data showed that subjects made veridical independent trial estimates, but aggregated information conservatively regardless of how far odds and likelihood ratios were from 1 : 1, thus permitting rejection of most forms of the response bias hypothesis.

PHYSIOLOGICAL AND ANIMAL PSYCHOLOGY

MS. 1232 *(24 pages/paper: $4; fiche: $2)*

Cerebral Dominance in Visual Perception: An Annotated Bibliography (1967–1975)

TERRY HOLCOMB and BILL R. ARNOLD
North Texas State University

This annotated bibliography is a compilation of research published between 1967 and 1975 on the functions of the cerebral hemisphere during visual perception. The 82 articles were selected by consulting the bibliographies of major reviews, and by a computer-based data search of *Psychological Abstracts, Educational Resources Information Center*, and *Social Science Index*. The annotation that accompanies the author, title, and source of each article is comprised of either (a) the printed abstract or summary that accompanied the original article, or, (b) the abstract of the article that appeared in *Psychological Abstracts*. Identification of a particular source is indicated at the conclusion of each abstract. For the reader's convenience, the materials reported in the bibliography are organized alphabetically under two major subdivisions: (a) Visual Field or Cerebral Functioning Studies, and, (b) Reviews. It is intended that the information presented will be of use to those who are novices in the area of cerebral hemispheric functioning as it relates to visual perception, especially prospective researchers who wish to gain some perspective on the current focus of research in this subdomain of psychology.

DEVELOPMENTAL PSYCHOLOGY

MS. 1233 *(74 pages/paper: $6; fiche: $2)*
Bibliography on the Psychological Assessment of the Child

DONALD K. ROUTH
University of North Carolina at Chapel Hill

Approximately 1,000 articles and books relating to traditional approaches and new directions in the assessment of the behavior of children are listed. The references are grouped under the following fourteen headings: (a) methodological issues; (b) interviewing and informal assessment techniques (child, parent, and family interviewing, and diagnostic classification); (c) rating scales (parent, teacher, peer); (d) personality questionnaires and other self-report devices; (e) projective tests (general, ink blot, thematic, doll play); (f) observational techniques (ecological and ethological approaches, activity, play, stereotypies, attachment, sex-role-related behaviors, fears, aggression, other social behavior, classroom behavior); (g) experimental measures (attention, reflection-impulsivity, humor, situational tests of character, role-taking, creativity, rigidity, delay of gratification, time orientation, some psychoanalytic constructs, field dependence-independence, leveling-sharpening, miscellaneous); (h) evaluation of the infant; (i) sensory, perceptual, and perceptual-motor evaluation (vision, hearing, touch, smell, vestibular function, visual perception, copying, human-figure drawing, miscellaneous); (j) evaluation of motor function; (k) speech and language evaluation; (l) assessment of cognitive functions (intelligence testing, nonverbal intelligence, miscellaneous); (m) assessment of academic skills (preschool screening, reading, handwriting, arithmetic, spelling, written language); and (n) evaluation of social competence.

MS. 1234 *(57 pages/paper: $6; fiche: $2)*
Infant Influences and the Parent Sex × Child Sex Interaction in the Socialization Process

WILLIAM G. KRIEGER
Susquehanna University

Two directions of influence in the socialization process are examined: the influence of the child (primarily the infant) upon parental behavior, and the influence of parental attempts to "appropriately" sex type the infant. Despite the fact that male and female roles are defined similarly in the majority of the world's cultures, little experimental evidence could be found that would support the hypothesis that differently sexed infants have different behavioral predispositions that encourage sex typing along traditional lines. Relatively more influence in the sex-typing process appears to flow from the parents, although the infant appears to influence parental behavior to some extent by simply presenting the parents with either a "boy"

or a "girl" stimulus configuration. Although infants appear to be relatively passive figures in the sex-typing process, they are seen to be active participants in, and initiators of, social activity. As a result, it is suggested that our socialization theories begin to consider the extent to which children influence their own socialization. Finally, it is suggested that in order to adequately understand the socialization/sex-typing process, we must begin to design studies that investigate the interaction of children of both sexes with both parents. Past studies that consider only one parent or only children of one sex have provided much information, but cannot give us the full picture of the social dynamics that underlie socialization and sex typing.

MS. 1235 *(38 pages/paper: $5; fiche: $2)*
Katz-Zalk Projective Prejudice Test: A Measure of Racial Attitudes in Children

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City University of New York, Hunter College

PHYLLIS A. KATZ
City University of New York, Graduate Center

A test consisting of slides of ambiguous school situations was designed for measuring racial attitudes in children. Items are of two major types: positive and negative. For each slide, the subject is asked to choose which child initiated or is the recipient of a positive or negative event. Each of the parts is further subdivided into four areas to elicit a more differentiated picture of a child's attitude. The prejudice subtest (negative portion) contains items relevant to (a) initiation of aggressive situations, (b) involvement in immoral behavior, (c) nonacceptance by peers, and (d) negative judgments of behavior by adults. The pride subtest (positive portion) contains items with regard to (a) leadership, (b) academic achievement, (c) athletic achievement, and (d) other types of achievement. The instrument was standardized on 547 Black and White urban, public school children at the first, second, fourth, and fifth grades. Additional data were collected from the second and fifth grades of a suburban community. Administration of the test was counterbalanced for race of examiner. Split-half reliability for both samples was in the .80's. Differences in response patterns were found as a function of age, race of examiner, race of subject, and in some instances, gender. Several trends emerged on the various subscales. On the pride items, both races tended to choose children of their own race. White children, however, selected same-race children more frequently when tested by a White examiner, and scores for this sample tended to decline with age. Black children, by contrast, selected same-race children increasingly with age, and they are not as sensitive to the race of the examiner. The only category on which there is any agreement is the athletic achievement category where older children of both races tended to select Black children. On the prejudice items, White children tended to obtain higher scores than Black children. Higher scores with same-raced examiners appeared only on the initiates aggression category. On two

of the subtests, scores for White children decreased with age, whereas those for Black children increased. Some problems with regard to validating attitude instruments are discussed, and the complexity of the measurement problem is noted.

SOCIAL PSYCHOLOGY

MS. 1236 *(12 pages/paper: $4; fiche: $2)*
Reexamination of Male Versus Female Representation in Psychological Research

PATRICE REARDON and SUZANNE PRESCOTT
Governors State University

This study is a follow-up to the study by Sara Schwabacher (1972) entitled *Male vs. Female Representation in Psychological Research: An Examination of the Journal of Personality and Social Psychology, 1970, 1971.* All the articles in the present study were taken from Vol. 30, 1974, *Journal of Personality and Social Psychology* and were reviewed for sex of subjects, type of conclusions drawn, and whether sex was mentioned in the abstract, introduction, or methods section. These results were compared to the Schwabacher study in order to discover if the conditions noted in her study continue to prevail or if there has been a change in scientific sampling and reporting procedures. Contrary to the Schwabacher study, the present study found that the percentage of all-male studies dropped 15%, while all-female studies rose 22%. When comparing the amount of overgeneralized, single-sex studies, all-male studies remained proportionately the same, whereas overgeneralized, all-female studies increased 35.5%. In addition, more both-sex articles checked for sex differences than in the Schwabacher study. The results in relation to the women's movement and scientific decision making are discussed. Three suggestions for scientific reporting and procedures are made.

MS. 1237 *(185 pages/paper: $11; fiche: $4)*
Research on Fear of Success: Full Annotated Bibliography

DAVID TRESEMER
Brattleboro, Vermont

This bibliography gives 186 citations for 155 studies using Horner's recent construct of fear of success (FOS). For each of the studies (many of which are available at the Fear of Success Collection, Sophia Smith Library, Smith College), information is given concerning (a) the number and sort of subject sample used in the study; (b) details of the measurement of FOS, including test materials, date of measurement, proportion of males and females showing

FOS imagery, and correlates of FOS score; and (c) experimental manipulations where FOS was an independent or dependent variable. The descriptions are strongly data oriented, including summary statistics (means and variances) where appropriate for comparisons between studies and also for secondary analysis. This comparison is encouraged by the use of effect-size indexes. A section is given on the scoring of success avoidant thema in responses to verbal story cues as an introduction to the practical aspect of assessing a personality disposition from story imagery. The uses of Horner's particular concept of fear of success in professional papers are briefly discussed, and the viewpoints that Horner's work has been cited to substantiate have been summarized for over 70 such papers.

MS. 1238 *(9 pages/paper: $4; fiche: $2)*
Sex-Role Stereotypes of Cognitive Task Performance

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City University of New York, Brooklyn College

Two studies of perceived sex differences in performance on cognitive tasks are reported. In Study 1, college students (N = 256) rated 34 different cognitive tasks on the degree to which they believed males or females would tend to perform better on such a task. In Study 2, college students (N = 58) sorted the same 34 tasks according to how well they believed males, females, and they themselves would tend to perform. The results of the two studies were quite consistent: Males are perceived as performing better on mathematical, mechanical, and spatial tasks, and females are perceived as performing better on verbal tasks. From the Study 2 data, a scale of task difficulty for males and females was derived, and some uses of this scale in future research are suggested.

MS. 1239 *(18 pages/paper: $4; fiche: $2)*
Interview Questionnaire on Attitudes Toward Family Planning in the Black Community

MARTIN F. ROSEMAN
Morehouse College

This 193-item questionnaire evolved from a review of resistance to family-planning programs for the Black community and from a pilot survey with 40 female and 41 male Black residents of Decatur, Georgia. Questions assess attitudes toward family planning, racial implications, religious beliefs, knowledge of contraception, and demographic variables. The following three scales are hypothesized to be related to attitudes toward family planning and the acceptance or rejection of birth control services: (a) distrust of government, (b) perception of White-racist attitudes toward family planning in the Black community, and (c) future orientation. Distrust of government correlated .41 for males and .43 for females with genocidal beliefs about

family planning for the Black community. Agreement with the statement that "the government will use information about Black people against Black people" was expressed by 72% of the men and 59% of the women.

MS. 1240 *(13 pages/paper: $4; fiche: $2)*

Manifest Anxiety in Mexican, Japanese, Israeli, and American Children

DONATA FRANCESCATO MEBANE
University of Rome

DALE L. JOHNSON
University of Houston

MICHAEL MEBANE
Harvard University

Gotts' hypothesis that manifest anxiety in children is related to societal restrictions was examined by comparing the Children's Manifest Anxiety Scale results of Mexican boys and girls with previously published results of American, Israeli, and Japanese children. The Mexican sample was selected to represent a high sex-role differentiation society for comparison with less differentiated societies. Support was found for Gotts' hypothesis. The importance of including more than one age group was also demonstrated.

MS. 1241 *(53 pages/paper: $6; fiche: $2)*

Newsletter of the Society for the Advancement of Social Psychology: Volume 1

LAWRENCE S. WRIGHTSMAN, *Newsletter Editor*
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The Society for the Advancement of Social Psychology (SASP) Newsletter is published bimonthly; the five issues of Volume 1 were published between October of 1974 and July of 1975. The purpose of the Newsletter is to facilitate communication among social psychologists. Among the topics covered in each issue are the use of computers in social psychology, theory in social psychology, group dynamics, and job openings. A column lists bibliographies, lecture outlines, and manuscripts that have been provided free by the authors upon request. A particular emphasis of the Newsletter is on the improvement of teaching social psychology. Nonacademic employment opportunities in social psychology are also discussed in each issue.

PERSONALITY

MS. 1242 *(12 pages/paper: $4; fiche: $2)*
Measuring Self-Concept: A Multitrait-Multimethod Look

DAVID W. STEWART
Central Louisiana State Hospital, Pineville

The Tennessee Self Concept Scale (TSCS) was examined within a multimethod-multitrait framework over a 3-year time period. Reliability and intercorrelation matrices are given based on 22 to 37 subjects that were tested and retested over the 3-year interval. The TSCS was found to be reliable and to bear consistent and systematic relationships to subscales of the 16 Personality Factor and California Psychological Inventory. It was concluded, however, that the TSCS was measuring only three or four independent dimensions of personality. The usefulness of measuring so global and pervasive a concept as the self was questioned.

Research on Fear of Success: Full Annotated Bibliography: David Tresemer. See MS. 1237, page 38.

Manifest Anxiety in Mexican, Japanese, Israeli, and American Children: Donata Francescato Mebane, Dale L. Johnson, and Michael Mebane. See MS. 1240, page 40.

CLINICAL PSYCHOLOGY

MS. 1243 *(16 pages/paper: $4; fiche: $2)*
Problem-Oriented Approach in the Private Practice of Psychotherapy

ALEX GILANDAS
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The problem-oriented method of codifying medical information developed by Lawrence Weed is a valuable contribution when it is adapted to psychotherapeutic private practice. Under the system, a patient's problems are listed, and all subsequent data, plans, and progress notes are cross-indexed to the appropriate problem. An assets list is also included. Case management through standardized documentation allows a more precise cost-benefit analysis of practice. Increased protection is obtained against malpractice suits. Also, the maintenance of efficient utilization review mechanisms by

private practitioners may make their patients eligible for wider insurance coverage. Standardization increases meaningful communication between the clinician and other therapeutic agencies, resulting in more efficient referrals. Moreover, it eliminates one of the major disadvantages of private practice by facilitating better access to the resources of the many agencies increasingly using the problem-oriented approach. The system's feedback loop encourages intelligible interaction between clinical theory and practice, thus, serving as an intrinsically satisfying method of pursuing continuing education. Pilot studies suggest that the problem-oriented record is an excellent means of delivering patient care and as such deserves the notice of private practitioners.

MS. 1244 *(26 pages/paper: $5; fiche: $2)*

Video in Psychotherapy and Therapist Training: An Introduction and Bibliography

LEWIS R. STERN
University of Minnesota

Video in Psychotherapy and Therapist Training is a basic introduction and reference list to the field of videotherapy. The video medium, an immediate feedback recording device of sound and sight, is fast becoming a widely used tool in psychotherapy and therapist training. This reference source contains an introduction to the topic, a brief glossary of videotherapy and training terminology, and a bibliography on the subject of over 300 articles and texts dated from 1947 through the beginning of 1975. Reference citations are accompanied by a marginal guide to volume and abstract numbers of the *Psychological Abstracts*. The articles and texts on video research in psychotherapy, training, and videotherapy techniques with children and adults, and individuals and groups are referenced. The questions of validity and effectiveness of implementation of video in the field are examined in the introduction and references.

MS. 1245 *(16 pages/paper: $4; fiche: $2)*

Improving Counselor Effectiveness by Means of Feedback and Encouragement

DANIEL G. ECKSTEIN
Virginia Intermont College

This paper was presented at the Eighty-Second Annual Convention of the American Psychological Association, August 1974, New Orleans, Louisiana.

In attempting to improve counselor effectiveness, 24 graduate students that were enrolled in four initial counseling practicum courses received varying amounts of feedbacks and encouragement. The control group received informal verbal and written feedback. The experimental group had

the additional benefit of formal verbal and written feedback. Such feedback consisted of the mean client and supervisor ratings based upon the Perceptual Characteristics Scale and encouragement to implement new counseling behaviors. Initial sessions between the trainee and volunteer college student clients were taped and later judged blindly by doctoral-level raters. Total rank-order mean scores placed trainees into high-, medium-, or low-rated groups, with half of the counselors being randomly assigned to either the experimental or control group. The experimental group received written feedback concerning rater and client perceptions at time intervals of two, five, and eight weeks. All counselors then completed a posttest consisting of an initial interview with a new client. Results of an analysis of variance indicated that clients judged their counselors significantly higher ($p < .0001$) than did expert raters. However, a significant correlation ($p < .05$) occurred between the client raters' opinions of effective trainees. The experimental group improved significantly ($p < .05$) on the pre–post chi-square rank-order scores summary. All counselors improved ($p < .05$) their posttest scores as a result of a supervised counseling practicum.

MS. 1246 *(35 pages/paper: $5; fiche: $2)*

Effectiveness of a Therapeutic Camping Program for Delinquent Adolescents

LAWRENCE H. RICKER
University of South Florida

FRANCIS C. WALKER
Frank Walker Associates, Inc., Tampa, Florida

A follow-up study was conducted in 1972 among 105 ex-campers in Florida who had been out of the therapeutic situation for at least a year. From the ratings of competent judges, working independently with information from interview reports and records of the behaviors of the ex-campers, it was found that 70% were improved to some degree, and 42% were either much or moderately improved. Further, the ex-campers had significantly fewer court contacts after the camp experience than a comparable stratified, random sample of juvenile court cases of delinquents who had not been in the camp program. The emphasis was upon documenting changes in social behavior with information gathered from 18 girls and 52 boys and other persons significant in their lives such as parents, camp staff, juvenile court workers, school officials, and employers. Six questionnaire forms provided 147 separate items of information regarding each ex-camper. Population detail is revealed, along with detail concerning the program itself, how the study was conducted, and the significant findings. Implications are discussed, with suggestions for improving the program.

MS. 1247 *(95 pages/paper: $7; fiche: $2)*

Female Homosexuality: A Comprehensive Review of Theory and Research

KRISTIANN MANNION
University of Idaho

The increase in the number of studies pertaining to etiology and the personality variables of lesbianism has necessitated a critical appraisal of theoretical content and research methodology. Such a review is presented in order to provide the direction for future research and the development of a contemporary theory of female homosexuality. A summary statement of Freud's theory of female sexuality as it pertains to lesbianism, and brief summaries of more current psychoanalytic theories of female homosexuality, are provided to facilitate the reader's understanding of the theoretical constructs that underpin the research methodology. The empirical research involves three major areas of investigation. These include assessment of the lesbian personality using projective techniques; personality assessment studies using nonprojective personality inventories and clinical interviews; and biographical variables, derived from projective tests designed to measure attitudes toward the family, and biographical questionnaires. Each area is considered individually and consistent trends, where they appear, are summarized. Drawing confident conclusion from the data is prohibited because of numerous unresolved issues involved in the choice of population samples. The major methodological problems of the research are discussed. They include providing a definition of lesbianism and determining the validity of the Kinsey scale as a parameter for selecting both homosexual and heterosexual samples for comparison; determining the within-group differences in the lesbian population that may relate differentially to etiology; and the failure of the investigators to consider current factors that sustain and reinforce the lesbian response pattern, regardless of etiology. There are some findings about the influence of prenatal androgen levels that may facilitate cross-gender role behavior in female children. These findings are summarized in conjunction with a discussion of the presence of cross-gender role behavior in heterosexual girls known to have been exposed to excessively high androgen levels *in utero*, and in a number of lesbians as children. Feminist sources provide an interpretation of the psychoanalytic concept of "penis envy" and suggest that the constraints of sex-role definitions play a role in maintaining lesbian behavior. The role-rejection theory of lesbianism is explained and suggestions are made for future research based on the feminist hypothesis.

MS. 1248 *(20 pages/paper: $4; fiche: $2)*
Factor Analytic Study of Schizophrenic Delusions

GLENN SHEAN, MILTON GEARING, RONALD SAVAGE, and CHRISTINE FAIX
College of William and Mary

Samples of delusional thought were derived from transcripts of interviews conducted with a cross section of hospitalized, schizophrenic patients. Interviews ranged in length from 10 minutes to 1 hour. Patients were asked to volunteer to participate in a study of "the circumstances that lead people to seek residence in or be sent to mental hospitals." Each subject was fully informed that the interview was to be tape-recorded (the recorder was placed on the desk in clear view throughout the interview) and transcribed. Patients were assured that the interview was confidential, not to be made available to the clinical staff, and would not affect their clinical status or treatment. An agreement that described the above arrangements in detail was signed by all the subjects who had voluntarily participated. Three patients refused to be tape-recorded. Of the 66 individuals included in this study, sex, race, chronicity, and educational level were well distributed with the sample. Transcripts were rated by three independent raters on a 42-item rating scale. The scale consisted of items that referred to categories and qualities of schizophrenic thought derived from the research and clinical literature. Actuarial and rating data were subjected to Multifactor Solution: Orthogonal Case Factor Analysis. Individual items were included in the data analyses only if each subject was rated on that item by each of the raters. Interrater reliability for all items included in the data analysis was .86. Four othogonal factors accounted for over 65% of the communality variance: grandeur, paranoia, delusional perception, and formal thought disturbance. Actuarial and diagnostic data were analyzed in the context of the factorial structure. Results are discussed in the context of two divergent approaches to the understanding of schizophrenic thought disturbance: (a) schizophrenic thought as evidence of formal thought disturbance, as initially suggested in Bleuler's distinction between primary and secondary symptoms, and further specified in the experimental psychopathology research literature; and (b) schizophrenic thought as a form of motivated reality restructuring based upon regression to developmentally earlier modes of cognitive and emotional function. Results are discussed in the context of contemporary genetic, psychopharmacological and psychological research, as supportive of Payne's (1974) proposed division of schizophrenic diagnoses into the following categories: (a) psychotic anxiety, (b) process schizophrenia, and (c) overinclusive psychosis.

MS. 1249 *(11 pages/paper: $4; fiche: $2)*
Rural Mental Health Needs Assessment: A Validation of the Health Opinion Survey

PAUL D. PETERSON and CHARLES BRINKERHOFF
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The Health Opinion Survey (HOS) was mailed to two experimental groups, each composed of 50 community mental health center clients who were identified as moderately or severely impaired in their daily functioning, and to one group of 50 control subjects. Return rates for the three groups were similar. Significant differences were found between groups on 12 HOS items. A discriminant analysis generated a series of weights for classification of questionnaire respondents. The HOS was demonstrated to be an efficient and valid method for the assessment of mental health needs.

MS. 1250 *(64 pages/paper: $6; fiche: $2)*
American University Hotline: Manual for Trainers

HOWARD KRIEGER, CRAIG WASSERMAN, JUDY KATZ, and JEFF KRIEGER
American University Counseling Center

The philosophy, rationale, and specific training procedures of the American University Hotline are detailed in this trainer's manual. The manual provides a step-by-step discussion of training procedures implemented in a student-operated, university hotline telephone service. The training package, widely disseminated over the past six years, has been used as a model for the National Institutes of Mental Health. Training design and implementation are discussed and the training text includes notes to trainers and suggestions as to application of concepts covered. The format used is specific and straightforward, discussing design, training environment, necessary materials, procedural points, and examples. This training program serves as a basic model for training paraprofessionals to work on a college campus. The manual represents completion of a service/training package begun with "The American University Hotline: A Model Crisis Intervention Telephone Service—Manual for Staff Members" (Krieger, et al., Ms. 862).

MS. 1251 *(46 pages/paper: $5; fiche: $2)*
Technique for Training Paraprofessionals in Rape-Crisis Counseling Procedures

WESLEY K. ROBERTS and BETTY K. HART
Columbus College Community Services

A four-session training workshop was conducted by Columbus College for paraprofessionals who are or plan to be engaged in rape-crisis intervention counseling. Medical aspects and treatment of rape victims were dis-

cussed along with police procedures and reports required for subsequent legal action. Workshop participants were instructed in selected counseling procedures and were allowed to practice developing their own techniques during group interaction. The workshop concluded with a session that encouraged participants to focus on their own attitudes and values concerning rape. No significant attitude modifications were observed to have changed as an immediate measurable product of workshop attendance. Participants, in general, responded to survey items in a manner similar to the philosophy on rape expressed by the National Organization for Women.

MS. 1252 *(47 pages/paper: $5; fiche: $2)*
Rape Crisis Center Training Manual

JAQUELYN LISS RESNICK
University of Florida

CLARA E. HILL
University of Maryland

LINDA DUTCHER
Southern Illinois University of Carbondale

This manual is designed for training paraprofessional workers who answer rape-crisis telephone lines. Communication skills, the process of crisis resolution, and the specific body of knowledge relevant to rape victims are uniquely integrated in the training program. The training manual is meant to serve as a guideline for group leaders and as a workbook for trainees. A suggested reading list and a rape-crisis resource list are included. The format of the program is a brief but intensive training course, made up of seven modules, and requiring approximately 20 hours. The training combines a didactic and experiential approach to learning. It is anticipated that both professional psychologists and skilled lay persons will be able to use the manual to provide more systematic training to those seeking to help rape victims.

EDUCATIONAL PSYCHOLOGY

MS. 1253 *(6 pages/paper: $4; fiche: $2)*
An Etch-A-Sketch Paradigm as a Cooperative Task: Assessment of Coaction and Practice Effects

MARK J. HANLON
University of North Dakota

JOHN M. PHILLIPS
Stanford University Law School

The present experiment employed and explored the utility of a novel research paradigm in a situation involving elementary school children. Each of 36 pairs of fourth-, fifth-, and sixth-grade children was asked to complete three trials of a dyadic, cooperative learning task in either a coaction or a "single pair"

condition. A $2 \times 3 \times 3$ research design was used to study the effects of three independent variables—grade level, trials, and coaction—on two dependent variable measures—time and errors—for each trial. A three-way analysis of variance for completion time yielded a significant interaction between condition and grade level ($p < 0.05$) as well as an expected main effect of trials ($p < 0.01$). The number of errors proved unsatisfactory as a dependent measure, however, an overall decrease in errors was apparent with trials (Friedman's test, $p < 0.05$). Apparently subjects became more sensitive to the competitive demands of the coaction condition with increments in grade.

MS. 1254 *(26 pages/paper: $5; fiche: $2)*
Anxiety and Academic Performance: A Review of the Literature on Conceptualization

ROBERT F. MARTIN
University of Maryland

The current focus on individualization of instructional procedures in the "new technology of teaching" has provided impetus for reexamination of anxiety as a variable in academic behavior. Existing literature is reviewed, suggesting the need for a taxonomy to provide some order and the basis for improving research and application. A preliminary taxonomy or conceptual framework is proposed. This orientation suggests that "anxiety" be viewed as a confound of antecedant conditions, whose influence on behavior operates on a continuum of facilitative to debilitative, as a function of state-trait-situation, and as a level of academic performance (a continuum from simple to complex). Thus, research should focus on a complex transaction of individual and situational variables with regard to classroom behavior.

MS. 1255 *(183 pages/paper: $11; fiche: $4)*
Learning to Learn: An Effective Model for Early Childhood Education

VERNON VAN DE RIET and MICHAEL B. RESNICK
University of Florida

The purpose of the Learning to Learn Project was to ascertain if a comprehensive, early-childhood intervention program could effectively break the cycle of educational disabilities and inadequacies generally associated with the public school careers of poverty children, and insure their long-term educational success. A major goal of the project was to increase and enhance young poverty children's abilities to reach and sustain the levels of in-

tellectual, linguistic, educational, and personal development necessary to enable them to continue achievement in later formal education. Major findings of the 5-year project revealed increases in the Learning to Learn children's intellectual ability, as well as average or better academic performance in regular school classrooms. The Learning to Learn Program produced major changes and maintained high levels of intellectual functioning in 73% of its participants; and, more importantly, developed their academic processes of reading, arithmetic, and communication skills, and personal-social factors to a level commensurate with educational success in public schools. The data concerning social behavior, school conduct, emotional adjustment, and academic motivation consistently revealed that the Learning to Learn children showed positive attitudes toward themselves, educational school situations, and the way they dealt with their day-to-day interpersonal interactions. This study clearly indicates that at the end of the third grade, graduates of the Learning to Learn Program are experiencing impressive educational and developmental success in public school. Favorable results of this magnitude and consistency have rarely been documented in the literature pertaining to preschool or early childhood education programs.

MS. 1256 *(189 pages/paper: $11; fiche: $4)*

Empirical Literature on Occupational and Educational Aspirations and Expectations: A Review (1975)

ROSALIND C. BARNETT and GRACE K. BARUCH
Radcliffe Institute, Cambridge, Massachusetts

In order to provide access to widely scattered literature, this review surveyed studies of occupational and educational aspirations and expectations for U.S. subjects from preschool through grade 12 and selected studies of older subjects. The review consists of two sections: (a) a text integrating relevant data, and (b) an annotated bibliography of approximately 125 studies. Major attention is devoted to findings on effects of race, sex, social class, and residence upon occupational and educational aspirations and expectations. These findings are organized separately for three grade levels: preschool through grade 8; grades 9 through 12; and posthigh school subjects. Terminological and methodological problems are also discussed, as are the effects upon aspirations and expectations of occupational values, occupational stereotypes, and occupational prestige. Major findings on key influencers, vocational maturity, and stability of plans are also reviewed. Finally, directions for future research are suggested, and possible intervention strategies for practitioners are proposed.

PERSONNEL AND INDUSTRIAL PSYCHOLOGY

MS. 1257 *(18 pages/paper: $4; fiche: $2)*
Women and Work: A Bibliography of Psychological Research

VERONICA F. NIEVA and BARBARA A. GUTEK
Institute for Social Research, University of Michigan

This bibliography is a compilation of 217 published articles and unpublished papers about the psychology of women and work. The pieces are taken from 162 journals belonging to five major areas: psychology, sociology, education, business, and women's studies. In addition, selections are taken from a group of more specialized journals, such as *Journal of Gerontology* and *American Journal of Orthopsychiatry*, and the popular press, such as *Transaction* and *Atlantic*. The great majority of the pieces are of very recent vintage—70% were published in the 1970's, including a full 30% published in 1974 or later. Of the remaining pieces, 20% were published in the 1960's, and 10% came from an earlier period. The bibliography includes not only references pertaining to women in employment, but also a number of references that deal with relevant antecedent conditions, such as attitudes and motivation, vocational interests, or career orientation. The references are listed in alphabetical order by author. In order to maximize utility of the bibliography, entries are coded along four major classification schemes. Each entry shows from one to four codes, depending on the number of classification schemes relevant to that entry. First, entries are coded if they deal with either access to or treatment in a work situation. Second, entries are classified along a more detailed content code according to the major emphasis of the article. Third, entries are coded according to level of analysis: internal, environmental, or societal. Fourth, entries that are primarily data-based are differentiated from those that are not.

MS. 1258 *(69 pages/paper: $6; fiche: $2)*
Use of Criterion-Referenced Tests in Personnel Selection: A Summary Status Report

LAWRENCE S. BUCK
U.S. Civil Service Commission, Washington, D.C.

U.S. Civil Service Commission Bureau of Policies and Standards Technical Memorandum, 1975 (Dec), No. 75-6.

This report, based on an extensive literature review, summarizes the current status of criterion-referenced tests (CRTs) for personnel selection purposes. Comparisons are made with norm-referenced tests (NRTs) and guidelines for CRT development are outlined. Scoring methods, as well as

procedures for estimating validity and reliability, are also discussed. Problems in the use of CRTs for personnel selection are pointed out, particularly in regard to the ranking of competitors. A concluding section indicates areas where further research is needed and other areas where CRTs are of potential value. Finally, an annotated bibliography is included for those who wish to do further reading.

MS. 1259 *(30 pages/paper: $5; fiche: $2)*

Feasibility of Estimating Personnel Turnover from Survey Data—A Longitudinal Study

WILLIAM E. ALLEY
Personnel Research Division
Lackland Air Force Base, Texas

R. BRUCE GOULD
Occupational and Manpower Research Division
Lackland Air Force Base, Texas

U.S. AFHRL Final Report, 1975 (Oct), No. TR-75-54.

The validity of career intent and job attitude statements for predicting reenlistments among 54,803 airmen in 101 enlisted specialties is investigated. Statements were made while completing Air Force occupational surveys during the period 1966 to 1971. Frequency and percentage distributions characterizing item responses and career decisions of the sample are given. Relationships between career intent/job attitude responses and actual reenlistment decisions were studied using multiple linear-regression techniques. Job attitudes were found to be substantially related to career decisions, but did not provide unique contributions to predictions of career decisions when used in conjunction with career-intent statements. A model-seeking exercise identified a second-degree polynomial model with career intent and time-in-service interaction vectors as the most appropriate prediction model. Separate prediction equations were obtained for a number of selected subsamples representing 2-, 3-, and 5-digit Air Force specialty code and aptitude requirement groupings. Homogeneous grouping exercises were performed to illustrate a procedure for reducing the number of subsample prediction equations to a minimum subset. Practical examples of forecasting reenlistment rates are illustrated. The regression model selected for the demonstration used weights derived from the total sample to predict the percentage of actual reenlistments for 30 specialties. Overall, approximately 17% of the sample remained in service. The average difference between actual versus predicted reenlistment rates across specialties ranged from 9% for airmen surveyed in their first year to 8%, 6% and 2% for airmen in their second through fourth year of service, respectively.

MS. 1260 *(143 pages/paper: $9; fiche: $4)*
Identification and Analysis of Social Incentives in Air Force Technical Training

MICHAEL T. WOOD, MILTON D. HAKEL, EDWARD R. DEL GAIZO and RICHARD J. KLIMOSKI
Ohio State University

U.S. AFHRL Interim Report, 1975 (Oct), No. TR-75-10.

This report describes the procedures followed in identifying and analyzing social incentives that might be used in Air Force technical training. Questionnaire techniques were used to scale potential incentives for attractiveness, feasibility, and other characteristics. Personal motives, background variables, and leadership-climate factors were found to be related to attractiveness ratings. Six social incentives from the original list were redesignated as social behaviors that should be encouraged in training environments to enhance performance. On the basis of the questionnaire and administrative assessments of feasibility data, 18 additional incentives (both social and nonsocial) were proposed for use in a field experimental situation.

MS. 1261 *(51 pages/paper: $6; fiche: $2)*
Development and Evaluation of an Objective Technique to Assess Effort in Training

ROBERT D. PRITCHARD and JOHN H. HOLLENBACK
Institute for Organizational Behavior Research, Lafayette, Indiana

PHILIP J. DE LEO
Technical Training Division, Lowry Air Force Base, Texas

U.S. AFHRL Final Report, 1975 (Oct), No. TR-75-39.

The validation of a quantifiable, objective, and reliable method of measuring the amount of effort to be directly rewarded in incentive systems was explored. A battery of relevant ability tests was given to a sample of Air Force trainees and to civilian subjects using a simulation of the course taught to the Air Force trainees. Results showed that the simulation subjects were comparable to the Air Force subjects and that the ability test battery predicted performance equally well for both samples. The hard criterion of effort displayed wide variability, excellent reliability, and good construct validity.

MS. 1262 *(27 pages/paper: $5; fiche: $2)*
Bibliography on Criteria of Managerial Success and on the Assessment Center and other Predictors of Managerial Success

STEVEN D. NORTON
University of Missouri–St. Louis

The bibliography surveys the literature on criteria and predictors of managerial success. It contains approximately 275 published and unpublished references to December of 1975. The references on criteria include rating scales, promotions, salary, and measures of productivity. The references on predictors include a thorough treatment of assessment centers, as well as covering in-baskets, leaderless group discussions, mental ability tests, objective personality tests, projective personality tests, interest tests, rating scales, and biographical information.

MS. 1263 *(133 pages/paper: $9; fiche: $4)*
Automated Pilot Aptitude Measurement System

GEORGE E. LONG
McDonnell Douglas Astronautics Co.
St. Louis, Missouri

NICHOLAS C. VARNEY
Personnel Research Division
Lackland Air Force Base, Texas

U.S. AFHRL Final Report, 1975 (Sept.), No. TR-75-58.

This study addresses the problem of predicting success in undergraduate pilot training (UPT) through the measurement of performance on a learning sample of flight tasks administered prior to the initiation of training. The learning sample that would be used to augment existing pilot selection procedures was proposed as a means of reducing attrition during UPT. Performance measures on a 5-hour learning sample of flight tasks, administered with an Automated Pilot Aptitude Measurement System (APAMS), were collected from 178 candidates for UPT that were selected for training with current procedures. These performance measures were then compared with performance during T-41 and T-37 phases of UPT. The results indicated that performance in both phases of training could be predicted from performance on the learning sample. Grades given by instructors in T-41 training were highly correlated with performance measures on the learning sample. Also, candidates who were eliminated from both phases of training, including those eliminated for manifestation of apprehension and self-initiated elimination, as well as eliminees for flying training deficiency could be discriminated by their performance on the learning sample. The results indicated that the learning sample approach could contribute substantially to existing pilot selection procedures in reducing current attrition rates in UPT.

MS. 1264 *(22 pages/paper: $4; fiche: $2)*
Ratings of First-Term Airmen on Supervisory Potential and Technical Competence in Air Force Specialty Codes (AFSCs) 462X0 and 812X0

LLEWELLYN N. WILEY
Occupational and Manpower Research Division, Lackland Air Force Base, Texas

U.S. AFHRL Interim Report, 1975 (Oct), No. TR-75-56.

A study was undertaken to determine if supervisors can rate the potential of first-term airmen to become supervisors. Ratees were 313 Weapons Mechanics (AFSCs 462X0 and 461X0) and 421 Law Enforcement Specialists (AFSCs 812X0 and 811X0), who were rated on three criteria and 30 job-behavioral traits by their supervisors in the continental United States. The criteria of (a) supervisory potential, (b) technical competence, and (c) desirability as a reenlistee were predicted from their correlation with the 30 trait ratings by linear-regression techniques. The aim was to see if the Weapons Mechanic and Law Enforcement specialties differed in their supervisory trait requirements, and if supervisory potential is distinguishable from technical competence. The first two criteria correlated .89 with each other, while the criterion of desirability as a reenlistee had to be discarded because it was not uniformly interpreted by the raters. Both technical competence and supervisory potential were highly predictable from trait ratings, 86% and 84%, respectively. However, through direct examination of the data and the supervisors' comments, it was concluded that the supervisory requirements of the two specialties actually differ, and that technical competence is an element of supervisory potential (a necessary but not sufficient attribute of a future supervisor).

MS. 1265 *(15 pages/paper: $4; fiche: $2)*
Index of Organizational Reactions (IOR)

FRANK J. SMITH
Sears, Roebuck, & Company, Chicago, Illinois

The following eight job-satisfaction scales from the Index of Organizational Reactions (IOR) are presented: supervision, kind of work, amount of work, physical conditions of work, coworkers, financial elements, career future, and company identification. In addition, validation information is abstracted. The IOR a priori scales are confirmed and are shown to possess stable factorial structure across a wide variety of samples (ranging from hourly retail sales personnel through upper-level executives) and overtime. The IOR is placed into a multitrait-multimethod matrix with the Job Descriptive Index, the Minnesota Satisfaction Questionnaire, and a set of Faces scales. This exercise demonstrates that the IOR possesses excellent convergent and discriminant validity. It is concluded that the IOR provides measures of

eight job satisfaction facets by a method that compares very favorably to the Job Descriptive Index, the Minnesota Satisfaction Questionnaire, and the Faces method.

MS. 1266 *(43 pages/paper: $5; fiche: $2)*
A Causal Analysis of Relationships Between Performance and Satisfaction in Eight Airman Specialties

KARL A. HICKERSON
Occupational Measurement Center
Lackland Air Force Base, Texas

JOE T. HAZEL and JOE H. WARD, JR.
Occupational and Manpower Research Division
Lackland Air Force Base, Texas

U.S. AFHRL Interim Report, 1975 (Oct), No. TR-75-57.

Longitudinal relationships between two measures of both job performance and job satisfaction over a three-year period were investigated for 1,352 airmen in eight enlisted Air Force occupational specialties. Cross-lagged panel correlation analyses were compared to conclusions based upon an extended multiple linear-regression-analysis technique. Data are presented that suggest causal influence between performance and satisfaction in two of the eight specialties. Other results indicated that the performance-satisfaction relationship is a complex one dependent upon the models used for (a) investigation, (b) the satisfaction, performance, and moderating variables selected, and (c) the particular job specialty under consideration. The report includes a presentation of the linear-regression models employed in the analysis and a bibliography of performance-satisfaction research.

MS. 1267 *(53 pages/paper: $6; fiche: $2)*
Assignment Location Preferences of Airmen

JOE T. HAZEL, WILLIAM J. STACY, and LLOYD D. BURTCH
Occupational and Manpower Research Division, Lackland Air Force Base, Texas

U.S. AFHRL Final Report, 1975 (Oct), No. TR-75-50.

To investigate assignment location preferences, a survey was administered to 4,670 airmen. Two preference ratings on an 18-point scale (−9 to +9) were obtained for each of 150 continental United States (CONUS) locations. One rating was obtained using base or station names. The other rating was based on an unnamed profile consisting of a 22 geographical-environmental variable description of each location. Findings were as follows: (a) Most-preferred locations tended to be concentrated in Florida, California, and Colorado, and least-preferred locations in "northern tier" states. (b) Variability in base-preference ratings increased with an increase in level of

desirability. (c) The relative order of preferences for 150 locations differed for various subgroups of airmen. (d) Base name and location description rating differences suggested airmen may have a low level of awareness of certain geographical-environmental characteristics for CONUS locations. (e) Geographical-environmental variable differences were found between the 30 most- and least-preferred locations for 14 of 22 variables (e.g., snowfall, temperature).

MS. 1268 *(19 pages/paper: $4; fiche: $2)*
Development of Physical Demand Profiles for Four Airman Career Ladders

KENNETH G. KOYM
Occupational and Manpower Research Division, Lackland Air Force Base, Texas

U.S. AFHRL Interim Report, 1975 (Nov), No. TR-75-67.

The purpose of this study was to examine the feasibility of estimating physical demands in jobs using incumbent ratings, and to compare physical-demand profiles for four career ladders. Job incumbents were asked to rate 10 physical characteristics and 5 lifting requirements on the amount of physical demand present in their jobs. High interrater reliability estimates were obtained in each ladder relative to the physical demand ratings. Mean physical demand ratings were plotted (i.e., profiled) and compared. Analyses of variance reflected significant mean differences among the career ladders for 14 of the physical demands investigated. Profiles for first-term and careerist airmen were compared using within- and across-career-ladder correlational analyses. The within-ladder groupings of first-term and careerist airmen produced substantially higher correlations than profiles for across-ladder groupings of first-term and careerist airmen. It appears feasible to obtain physical demand data from job incumbents.

MS. 1269 *(52 pages/paper: $6; fiche: $2)*
Comparative Analysis of the Relative Validity for Subjective Time Rating Scales

JAMES B. CARPENTER, M. JOYCE GIORGIA, and BARRY P. McFARLAND
Occupational and Manpower Research Division, Lackland Air Force Base, Texas

U.S. AFHRL Final Report 1975 (Dec), No. TR-75-63.

This report summarizes the results of two separate investigations aimed at determining the inherent accuracy of derived job descriptions. Since the accuracy and validity of occupational data may be differentially affected by the rating-scale format employed in gathering the data, the first phase of the research reported incorporates hypothetical job descriptions from which accurate criterion data could be generated. The second phase of the research necessitated the development of an occupational survey instrument specifically designed for Air Force basic trainees. Actual time-spent meas-

ures supplied by supervisors were found to have sufficient reliability for use as a criterion in this phase of the investigation. Criterion comparison (CRICOM) or error values were used with an analysis of variance design to determine the relative validities for subjective time-rating scales. In general, 5-point relative scales were found to be inferior to the other scales used in this study. It was further established that job incumbents can use scales of greater complexity (e.g., a wider range of response options) than had previously been indicated in the literature. The discrepancies in estimates of absolute time or percentage values previously reported were confirmed, but the inaccuracies within this approach were found to relate only to the absolute raw values. When these absolute values were treated as relative indexes, no significant differences in the validity of the derived job descriptions were universally obtained. Results of this investigation were interpreted to indicate that a 9-point relative-time-spent scale represents an optimal solution to the interactive problems of complexity and efficiency with regards to obtaining viable job-description data from job incumbents using the Air Force-developed occupational analysis methodology.

MS. 1270 *(361 pages/paper: $18; fiche: $8)*
Systematically Derived Dimensions of Human Work

R. R. BOESE and J. W. CUNNINGHAM
North Carolina State University at Raleigh

Center for Occupational Education Report, 1975, Ergometric Research and Development Series No. 14.

Human work dimensions were derived through factor analyses of 602 work elements in the Occupation Analysis Inventory (OAI). The OAI elements describe various kinds of work activities and conditions on which jobs and occupations are rated. The data consisted of the OAI ratings of 1,414 jobs representing the percentages of workers employed in five major occupational categories. Eight separate factor analyses were performed on groups of work elements contained in the following sections of the OAI: (a) information received, (b) mental activities, (c) physical work behavior, (d) general physical requirements, (e) representational work behavior, (f) interpersonal work behavior, (g) work goals, and (h) work context. Those analyses produced 132 first-order work dimensions that, in turn, were subjected to an overall factor analysis yielding 28 general (higher-order) dimensions. The resultant dimensions were readily interpretable and meaningful; the investigators were unable to name only five first-order and four higher-order dimensions. Analyses of factorial stability were performed involving the computation of congruence coefficients between factors derived from two separate subsamples of 707 jobs each; the results compared favorably with findings in previous factor-analytic studies involving the same and similar variables. (The congruence coefficients were generally higher for orthogonally rotated factors than for oblique factors obtained through the maxplane rotation procedure.) Since the OAI elements cover a wide variety of work ac-

tivities and conditions and the job sample in this study was reasonably representative of the job population, the OAI dimensions should be broadly representative of the kinds of activities and conditions existing in the world of work. Applications of the OAI dimensions might be found in such areas as occupational taxonomy development, vocational/technical education program analysis, and occupationally related test development. The dimensions have already served as bases for occupational clustering and interest-scale development.

ENGINEERING PSYCHOLOGY

MS. 1271 *(193 pages/paper: $11; fiche: $4)*
Final Experiment Report for Skylab Experiment M516: Crew Activities/Maintenance Study

ROBERT L. BOND
NASA Johnson Spacecraft Center, Houston, Texas

EDWARD W. KARNES, JOHN MOHEGAN, and JOHN SMIALEK
Martin Marietta Corporation, Denver, Colorado

Skylab Experiment M516, Crew Activities/Maintenance, was designed to gather data on crew activities during routine daily operations on the three Skylab missions. The overall objective was to secure inflight data relevant to the performance of as broad a spectrum of tasks as possible in the weightless environment. Man's capability to conduct routine, long-term daily operational and scientific tasks in a weightless environment had never been the subject of thorough and systematic documentation in space missions prior to Skylab. Data concerning his ability to use tools and to assemble/disassemble equipment (manual dexterity), to maneuver inside a spacecraft containing large open volumes (locomotion), to handle and transport masses of various sizes (logistics management), and to make equipment repairs (maintenance) had been limited by the relatively small volume space vehicles and the short duration missions. Skylab, as the first NASA-manned program involving long-term living and working in space, provided the first opportunity to systematically evaluate these types of crew activities. Experiment data included 16 mm film, air-to-ground and onboard recorded voice transcripts, logbook-recorded comments, and TV transmissions. The results and conclusions presented in the report provide a basis for the development of planning and design criteria for future manned space systems in the areas of manual dexterity, crew locomotion, logistics management, inflight maintenance, and general onboard scheduling of crew activities.

MS. 1272 *(86 pages/paper: $7; fiche: $2)*
Method for Predicting Manning Factors in Postyear 2000 Ships

ARTHUR I. SIEGEL, J. JAY WOLF, and ALLAN R. WILLIAMS
Applied Psychological Services, Wayne, Pennsylvania

Office of Naval Research Technical Report, 1975 (Dec), No. NR-196-197.

The prediction of required manning in postyear 2000 ships represents a complex topic that must consider technological advances, automation trends, and changes in the functions performed by system operators/maintainers. In order to explore whether or not a computer-simulation approach possesses potential for providing manning estimates for postyear 2000 ships, some characterization of the ships of that era was believed required. To obtain this characterization, relevant literature was reviewed and synthesized. Additionally, interview information was acquired from a number of scientists who deal with advanced technologies. Then, four different computer-simulation models that are held to possess potential for achieving the required postyear 2000 manning predictions were outlined and described. While each of the developed models possesses some advantage, a combination of two or more of the models would probably yield the most useful predictions.

MS. 1273 *(122 pages/paper: $8; fiche: $4)*
Digital Simulation of Submarine Crew Performance: II—Computer Implementation and Initial Results of the Application of a Psychosocial "Model" for Digitally Simulating Crew Performance

ARTHUR I. SIEGEL and J. JAY WOLF
Applied Psychological Services, Wayne, Pennsylvania

Office of Naval Research Final Report, 1965 (Aug).

This is the second Applied Psychological Services' report, in a series, concerning the development, verification, and utilization of a psychosocial, digital-simulation model. The model was described in the initial report (Siegel, Wolf, Barcik, & Miehle, 1964) as a technique for simulating the performance of submarine crews operating in confined quarters for extended time intervals. This report presents further developmental information on the model and sensitivity data from its initial use. Some general aspects of simulation, as they apply to the model, are developed first. Then the computer and computer programming aspects of the model are presented. A hypothetical 10-day mission, generated to approximate a potentially realistic situation, is described and employed as a demonstration of the sensitivity of some of the model's critical parameters.

MS. 1274 *(105 pages/paper: $8; fiche: $4)*
Digital Simulation of the Performance of Intermediate Size Crews: A Multimethod-Multitrait Validation of a Digital Simulation Model

ARTHUR I. SIEGEL, MARTIN R. LAUTMAN, AND J. JAY WOLF
Applied Psychological Services, Wayne, Pennsylvania

Office of Naval Research Final Technical Report, 1972 (July), No. 170-710.

A systematic logic for the validation of digital simulation models is presented and applied to the validation of a previously developed model for simulating the acts and behaviors of intermediate size crews as they perform system operation tasks. The mission simulated was a trust territories reconnaissance by a patrol gunboat (PG) class Navy ship. The results indicated that the validation logic employed (the multimethod-multitrait approach) aided in the identification of both model and criterion error. Identification of both error sources is required if model improvements and revisions are to be implemented. The results of the various analyses, completed on the basis of an initial multimethod-multitrait matrix, indicated support for both the convergent and the discriminant validity of the simulation model.

MS. 1275 *(227 pages/paper: $13; fiche: $6)*
Development of a Prototype Human Resources Data Handbook for Systems Engineering: An Application to Fire Control Systems

LAWRENCE E. REED, MELVIN T. SNYDER, and HARRY A. BARAN
Advanced Systems Division, Wright-Patterson Air Force Base, Ohio

SUSAN L. LOY and JAMES G. CURTIN
McDonnell Douglas Astronautics—East, St. Louis, Missouri

U.S. AFHRL Final Report, 1975 (Dec), No. TR-75-64.

The methods and problems encountered in the development of a prototype human resources data handbook are discussed. The goal of the research was to determine whether it was feasible to consolidate, in a single comprehensive handbook, human resources data applicable to system design and development. Selected for this purpose were data on the functions performed by the 32XXX avionics career field on the fire control system of nine Air Force fighter systems. This report discusses the methods used and the problems encountered during the development of the prototype handbook. This prototype handbook, presented in Appendix A, was designed for ease of use and was organized into three major data sections. Section I was reserved for data comparisons on system design, training, manpower, occupational tasks, maintenance procedures, etc. Included in Section II were data on past, current, and projected numbers of personnel, various skill levels, etc. Section III was reserved for technical information that could be generalized to a wide variety of problems. Included in this last section were data on the effects of task difficulty, error rates in performing maintenance activities, etc.

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